

Search Plan and Results

Question

For older adults (age>65), what is the effect of weight loss vs. weight maintenance on health outcomes (cardiovascular disease, Type 2 diabetes, cancer and mortality)? (DGAC 2010)

Date Searched

2/16/2010

Inclusion Criteria

- January 1995 to present
- Human subjects
- English language
- International
- *Sample size:* Minimum of 10 subjects per study arm; preference for larger sizes, if available
- *Dropout rate:* Less than 20%; preference for smaller dropout rates
- *Ages:* Adults 19 years and older
- *Populations:* Healthy, those with elevated chronic disease risk, and those diagnosed with the highly prevalent chronic diseases (CHD/CVD, hypertension, type 2 diabetes, osteoporosis, osteopenia and obesity).

Exclusion Criteria

- Medical treatment/therapy
- Diseased subjects
- Hospitalized patients
- Malnourished/third-world populations or disease incidence not relative to US population (e.g., malaria)
- Animal studies
- In vitro studies
- Articles not peer reviewed (websites, magazine articles, Federal reports, etc.)
- Cross-sectional studies.

Search Terms: Search Vocabulary

("1995"[Publication Date] : "3000"[Publication Date]) AND ("Weight maintenance" OR "Body Weight Changes"[majr] OR "weight loss"[mh] OR "Body Weights and Measures"[majr])) AND "Aged"[mh] AND (neoplasms[mh] OR "Diabetes Mellitus"[Mesh] OR "Cardiovascular Diseases"[Mesh] OR mortality) NOT ("young adult"[mh] OR "middle aged"[mh] OR Editorial[ptyp] OR Letter[ptyp] OR comment[ptyp] OR news[ptyp] OR review[ptyp])

Electronic Databases

Pubmed

Total hits from all electronic database searches: 419

Total articles identified to review from electronic databases: 73

Articles Identified Via Handsearch or Other Means

Articles identified via hand search: 4

Summary of Articles Identified to Review

Number of Primary Articles Identified: 39

Number of Review Articles Identified: 0

Total Number of Articles Identified: 39

Number of Articles Reviewed but Excluded: 38

List of Articles Included for Evidence Analysis

Randomized Controlled Trials (1)

Shea MK, Houston DK, Nicklas BJ, Messier SP, Davis CC, Miller ME, Harris TB, Kitzman DW, Kennedy K, Kritchevsky, SB. The Effect of randomization to weight loss on total mortality in older overweight and obese adults: The ADAPT Study. *J Gerontol A Biol Sci Med Sci.* 2010.

Cohort Studies (35)

Allison DB, Gallagher D, Heo M, Pi-Sunyer FX, Heymsfield SB. [Body mass index and all-cause mortality among people age 70 and over: The Longitudinal Study of Aging.](#) *Int J Obes Relat Metab Disord.* 1997 Jun; 21 (6): 424-431. PMID: 9192224.

Amador LF, Al Snih S, Markides KS, Goodwin JS. [Weight change and mortality among older Mexican Americans.](#) *Aging Clin Exp Res.* 2006 Jun; 18 (3): 196-204. PMID: 16804365.

Arnold AM, Newman AB, Cushman M, Ding J, Kritchevsky S. [Body weight dynamics and their association with physical function and mortality in older adults: The Cardiovascular](#)

[Health Study](#). *J Gerontol A Biol Sci Med Sci*. 2010 Jan; 65 (1): 63-70. Epub 2009 Apr 22. PMID: 19386574; PMCID: PMC2796878.

Corrada MM, Kawas CH, Mozaffar F, Paganini-Hill A. [Association of body mass index and weight change with all-cause mortality in the elderly](#). *Am J Epidemiol*. 2006 May 15; 163 (10): 938-949. Epub 2006 Apr 26. PMID: 16641311.

de Groot CP, Enzi G, Matthys C, Moreiras O, Roszkowski W, Schroll M. [Ten-year changes in anthropometric characteristics of elderly Europeans](#). *J Nutr Health Aging*. 2002; 6 (1): 4-8. PMID: 11813073.

Dey DK, Rothenberg E, Sundh V, Bosaeus I, Steen B. [Body mass index, weight change and mortality in the elderly. A 15-year longitudinal population study of 70-year olds](#). *Eur J Clin Nutr*. 2001 Jun; 55 (6): 482-492. PMID: 11423925.

Diehr P, O'Meara ES, Fitzpatrick A, Newman AB, Kuller L, Burke G. [Weight, mortality, years of healthy life and active life expectancy in older adults](#). *J Am Geriatr Soc*. 2008 Jan; 56 (1): 76-83. Epub 2007 Nov 20. PMID: 18031486.

Diehr P, BildDE, Harris TB, Duxbury A, Siscovick D, Rossi M. [Body mass index and mortality in non-smoking older adults: The Cardiovascular Health Study](#). *Am J Public Health*. 1998 Apr; 88 (4): 623-629. PMID: 9551005; Central PMCID: PMC1508430.

Dolan CM, Kraemer H, Browner W, Ensrud K, Kelsey JL. [Associations between body composition, anthropometry and mortality in women aged 65 years and older](#). *Am J Public Health*. 2007 May; 97 (5): 913-918. Epub 2007 Mar 29. PMID: 17395851; PMCID: PMC1854878.

Ellekjaer H, Holmen J, Vatten L. [Blood pressure, smoking and body mass in relation to mortality from stroke and coronary heart disease in the elderly. A 10-year follow-up in Norway](#). *Blood Press*. 2001; 10 (3): 156-163. PMID: 11688763.

Grabowski DC, Ellis JE. [High body mass index does not predict mortality in older people: Analysis of the Longitudinal Study of Aging](#). *J Am Geriatr Soc*. 2001 Jul; 49 (7): 968-979. PMID: 11527490.

Graham JE, Snih SA, Berges IM, Ray LA, Markides KS, Ottenbacher KJ. [Frailty and 10-year mortality in community-living Mexican American older adults](#). *Gerontology*. 009; 55 (6): 644-651. Epub 2009 Aug 18. PMID: 19690395; Central PMCID: PMC2783319.

Inoue K, Shono T, Toyokawa S, Kawakami M. [Body mass index as a predictor of mortality in community-dwelling seniors](#). *Aging Clin Exp Res*. 2006 Jun; 18 (3): 205-210. PMID: 16804366.

JanssenI. [Morbidity and mortality risk associated with an overweight BMI in older men and women](#). *Obesity* (Silver Spring). 2007 Jul; 15 (7): 1, 827-1, 840. PMID: 17636102.

Janssen I, Katzmarzyk PT, Ross R. [Body mass index is inversely related to mortality in older people after adjustment for waist circumference](#). *J Am Geriatr Soc*. 2005 Dec; 53 (12): 2, 112-2, 118. PMID: 16398895.

Kalmijn S, Curb JD, Rodriguez BL, Yano K, Abbott RD. [The association of body weight and anthropometry with mortality in elderly men: The Honolulu Heart Program](#). *Int J Obes Relat Metab Disord*. 1999 Apr; 23 (4): 395-402. PMID: 10340818.

Keller HH, Østbye T. [Body Mass Index \(BMI\), BMI change and mortality in community-dwelling seniors without dementia](#). *J Nutr Health Aging*. 2005 Sep-Oct; 9 (5): 316-320. PMID: 16222397.

Knudtson MD, Klein, BE, Klein R, Shankar A. Associations with weight loss and subsequent mortality risk. *Ann Epidemiol*. 2005; 12 (7): 483-491.

Kulminski AM, Arbeev KG, Kulminskaya IV, Ukraintseva SV, Land K, Akushevich I, Yashin AI [Body mass index and nine-year mortality in disabled and non-disabled older US individuals](#). *J Am Geriatr Soc*. 2008 Jan; 56 (1): 105-110. Epub 2007 Nov 15.

Mazza A, Zamboni S, Tikhonoff V, Schiavon L, Pessina AC, Casiglia E. [Body mass index and mortality in elderly men and women from general population. The experience of Cardiovascular Study in the Elderly \(CASTEL\)](#). *Gerontology*. 2007; 53 (1): 36-45. Epub 2006 Sep 18. PMID: 16983188.

Newman AB, Yanez D, Harris T, Duxbury A, Enright PL, Fried LP; Cardiovascular Study Research Group. [Weight change in old age and its association with mortality](#). PMID: 11890489. *J Am Geriatr Soc*. 2001 Oct; 49 (10): 1, 309-1, 318.

Nguyen ND, Center JR, Eiseman JA, Nguyen TV. [Bone loss, weight loss and weight fluctuation predict mortality risk in elderly men and women](#). *J Bone Miner Res*. 2007 Aug; 22 (8): 1, 147-1, 154. PMID: 17635040.

Payette H, Coulombe C, Boutier V, Gray-Donald K. [Weight loss and mortality among free-living frail elders: A prospective study](#). *J Gerontol A Biol Sci Med Sci*. 1999 Sep; 54 (9): M440-M445. PMID: 10536646.

Price GM, Uauy R, Breeze E, Bulpitt CJ, Fletcher AE. [Weight, shape and mortality risk in older persons: Elevated waist-hip ratio, not high body mass index, is associated with a greater risk of death](#). *Am J Clin Nutr*. 2006 Aug; 84 (2): 449-460. PMID: 16895897.

Reynolds MW, Fredman L, Langenberg P, Magaziner J. [Weight, weight change, mortality in a random sample of older community-dwelling women](#). *J Am Geriatr Soc*. 1999 Dec; 47 (12): 1, 409-1, 414. PMID: 10591233.

Rodriguez C, Calle EE, Fakhrabadi-Shokoohi D, Jacobs EJ, Thun MJ. [Body mass index, height and the risk of ovarian cancer mortality in a prospective cohort of postmenopausal women](#). *Cancer Epidemiol Biomarkers Prev*. 2002 Sep; 11 (9): 822-828. PMID: 12223425.

Sorensen TI, Rissanen A, Korkeila M, Kaprio J. Intention to lose weight, weight changes, and 18-year mortality in overweight individuals without co-morbidities. *PLoS Med*. 2005; 2 (6): e171.

Sullivan DH, Liu L, Roberson PK, Bopp MM, Rees JC. [Body weight change and mortality in a cohort of elderly patients recently discharged from the hospital](#). *J Am Geriatr Soc*. 2004 Oct; 52 (10): 1, 696-1, 701. PMID: 15450047.

Sullivan DH, Morley JE, Johnson LE, Barber A, Olson JS, Stevens MR, Yamashita BD, Reinhart SP, Trotter JP, Olave XE. [The GAIN \(Geriatric Anorexia Nutrition\) registry: The impact of appetite and weight on mortality in a long-term care population](#). PMID: 12486448. *J Nutr Health Aging*. 2002; 6 (4): 275-281.

Takata Y, Ansai T, Soh I, Akifusa S, Sonoki K, Fujisawa K, Awano S, Kagiyama S, Hamasaki T, Nakamichi I, Yoshida A, Takehara T. [Association between body mass index and mortality in an 80-year-old population. PMID: 17537093.](#) *J Am Geriatr Soc.* 2007 Jun; 55 (6): 913-917.

Vischer UM, Safar ME, Safar H, Iaria P, Le Dugal K, Henry O, Herrmann FR, Ducimetière P, Blacher J. [Cardiometabolic determinants of mortality in a geriatric population: Is there a "reverse metabolic syndrome"? PMID: 19237305.](#) *Diabetes Metab.* 2009 Apr; 35 (2): 108-114. Epub 2009 Feb 23.

Volpato S, Romagnoni F, Soattin L, Blè A, Leoci V, Bollini C, Fellin R, Zuliani G. [Body mass index, body cell mass, and four-year all-cause mortality risk in older nursing home residents. PMID: 15161451.](#) *J Am Geriatr Soc.* 2004 Jun; 52 (6): 886-891.

Weiss A, Beloosesky Y, Boaz M, Yalov A, Kornowski R, Grossman E. [Body mass index is inversely related to mortality in elderly subjects. PMID: 17955304; PMCID: PMC2173925.](#) *J Gen Intern Med.* 2008 Jan; 23 (1): 19-24. Epub 2007 Oct 23.

Woo J, Ho SC, Sham A. [Longitudinal changes in body mass index and body composition over three years and relationship to health outcomes in Hong Kong Chinese age 70 and older. J Am Geriatr Soc.](#) 2001 Jun; 49 (6): 737-746. PMID: 11454112.

Yaari S, Goldbourt U. Voluntary and involuntary weight loss: associations with long-term mortality in 9, 228 middle-aged and elderly men. *Am J Epidemiol.* 1998; 148 (6): 546-555.

Longitudinal Observational Studies (2)

Locher JL, Roth DL, Ritchie CS, Cox K, Sawyer P, Bodner EV, AllmanRM. [Body mass index, weight loss and mortality in community-dwelling older adults. J Gerontol A Biol Sci Med Sci.](#) 2007 Dec; 62 (12): 1, 389-1, 392. PMID: 18166690; PMCID: PMC2750037.

Woo J, HoSC, Yu AL, Sham A. [Is waist circumference a useful measure in predicting health outcomes in the elderly? Int J Obes Relat Metab Disord.](#) 2002 Oct; 26 (10): 1, 349-1, 355. PMID: 12355330.

Structural Equation Models (1)

Yang Z, Bishai D, Harman J. [Convergence of body mass with aging: The longitudinal interrelationship of health, weight and survival. Econ Hum Biol.](#) 2008 Dec; 6 (3): 469-481. Epub 2008 Jul 1. PMID: 18676210.

List of Excluded Articles with Reason

Article (A-P)	Reason for Exclusion
Barzilay JI, Forsberg C, Heckbert SR, Cushman M, Newman AB. The association of markers of inflammation with weight change in older adults: The Cardiovascular Health Study. Int J Obes (Lond). 2006 Sep; 30 (9): 1, 362-1, 367. Epub 2006 Mar 14. PMID: 16534520.	Does not include CVD as an outcome; looks at inflammatory markers.

<p>Brown T, Avenell A, Edmunds LD, Moore H, Whittaker V, Avery L, Summerbell C. <u>Systematic review of long-term lifestyle interventions to prevent weight gain and morbidity in adults.</u> <i>Obes Rev.</i> 2009 Nov; 10 (6): 627-638. Epub 2009 Sep 14. Review. PMID: 19754634.</p>	<p>Does not answer question; did not address the population of interest.</p>
<p>Carantoni M, Zuliani G, Volpato S, Palmieri E, Mezzetti A, Vergnani L, Fellin R. <u>Relationships between fasting plasma insulin, anthropometrics, and metabolic parameters in a very old healthy population.</u> <i>Associazione Medica Sabin.</i> Associazione Medica Sabin. <i>Metabolism.</i> 1998 May; 47 (5): 535-540. PMID: 9591743.</p>	<p>Does not answer questions; examined fasting plasma insulin, anthropometrics, and metabolic parameters and not weight loss/weight maintenance.</p>
<p>Catananti C, Liperoti R, Settanni S, Lattanzio F, Bernabei R, Fialova D, Landi F, Onder G. <u>Heart failure and adverse drug reactions among hospitalized older adults.</u> <i>Clin Pharmacol Ther.</i> 2009 Sep; 86 (3): 307-310. Epub 2009 Jun 10. PMID: 19516254.</p>	<p>Does not answer question; examined heart failure as a risk factor for adverse drug reactions among hospitalized subjects.</p>
<p>Chin A Paw MJ, Dekker JM, Feskens EJ, Schouten EG, Kromhout D. <u>How to select a frail elderly population? A comparison of three working definitions.</u> A comparison of three working definitions. <i>J Clin Epidemiol.</i> 1999 Nov; 52 (11): 1, 015-1, 021. PMID: 10526994.</p>	<p>Does not answer question; examined working definitions for selecting a frail elderly population.</p>
<p>Chouinard J, Lavigne E, Villeneuve C. <u>Weight loss, dysphagia and outcome in advanced dementia.</u> <i>Dysphagia.</i> 1998 Summer; 13 (3): 151-155. PMID: 9633155.</p>	<p>Does not answer question; examined weight loss related to subjects with advanced dementia; not related to health outcomes outlined in research question.</p>
<p>Colditz GA, Coakley E. <u>Weight, weight gain, activity, and major illnesses: The Nurses' Health Study.</u> <i>Int J Sports Med.</i> 1997 Jul; 18 Suppl 3: S162-S170. PMID: 9272843.</p>	<p>Study is a narrative review.</p>
<p>Fleury J, Keller C. <u>Cardiovascular risk assessment in elderly individuals.</u> <i>J Gerontol Nurs.</i> 2000 May; 26 (5): 30-37. Review. PMID: 11111518.</p>	<p>Study is a narrative review.</p>
<p>García-Palmieri MR. <u>Primary and secondary prevention of cardiovascular disease in the elderly.</u> <i>Bol Asoc Med P R.</i> 2000 Jan-Mar; 92 (1-3): 3-8. Review. PMID: 10846280.</p>	<p>Study is a narrative review.</p>

<p>Gardin JM, Arnold A, Gottdiener JS, Wong ND, Fried LP, Klopfenstein HS, O'Leary DH, Tracy R, Kronmal R. Left ventricular mass in the elderly. <i>The Cardiovascular Health Study</i>. 1997 May; 29 (5): 1, 095-1, 103. PMID: 9149672.</p>	<p>Does not answer question; examined body weight as it relates to the question of weight loss/maintenance and health outcomes.</p>
<p>Guyonnet S, Nourhashemi F, Ousset PJ, Micas M, Ghisolfi A, Vellas B, Albareda JL. Factors associated with weight loss in Alzheimer's disease. <i>J Nutr Health Aging</i>. 1998; 2 (2): 107-109. PMID: 10993577.</p>	<p>Does not answer question; examined weight loss in diseased subjects with Alzheimer's disease; not related to health outcomes outlined in research question.</p>
<p>Hildebrand JK, Joos SK, Lee MA. Use of the diagnosis "failure to thrive" in older veterans. <i>J Am Geriatr Soc</i>. 1997 Sep; 45 (9): 1, 113-1, 117. PMID: 9288021.</p>	<p>Does not answer question; examined weight loss in subjects, but not the relationship between the weight loss and health outcomes.</p>
<p>Hsieh CJ, Wang PW. Effectiveness of weight loss in the elderly with type 2 diabetes mellitus. <i>J Endocrinol Invest</i>. 2005 Dec; 28 (11): 973-977. PMID: 16483174.</p>	<p>Study subjects diagnosed with type 2 diabetes.</p>
<p>Hurley BF, Roth SM. Strength training in the elderly: Effects on risk factors for age-related diseases. <i>Sports Med</i>. 2000 Oct; 30 (4): 249-268. Review. PMID: 11048773.</p>	<p>Does not answer question; examined strength training related to age-related diseases.</p>
<p>Jeffe DB, Binder EF, Williams DB, Kohrt WM. Frail older women's participation in a trial of hormone replacement therapy: Perceived benefits and concerns. <i>Menopause</i>. 2001 Summer; 8 (2): 127-134. PMID: 11256873.</p>	<p>Does not answer question; examined reasons subjects participated or didn't participate in clinical trial of hormone replacement therapy.</p>
<p>Keller HH, Gibbs AJ, Boudreau LD, Goy RE, Pattillo MS, Brown HM. Prevention of weight loss in dementia with comprehensive nutritional treatment. <i>J Am Geriatr Soc</i>. 2003 Jul; 51 (7): 945-952. PMID: 12834514.</p>	<p>Does not answer question; examined subjects with dementia; not related to health outcomes outlined in research question.</p>
<p>Keller HH. Weight gain impacts morbidity and mortality in institutionalized older persons. <i>J Am Geriatr Soc</i>. 1995 Feb; 43 (2): 165-169. PMID: 7836642.</p>	<p>Study subjects were diagnosed with a disease and were in a chronic care hospital.</p>
<p>Kiehn JM, Ghormley CO, Williams EB. Physician-assisted weight loss and maintenance in the elderly. <i>Clin Geriatr Med</i>. 2005 Nov; 21 (4): 713-723, vi. PMID: 16182084.</p>	<p>Does not answer question; examined barriers to physician intervention, methods to assess obesity risk, and readiness to change; not related to the research question.</p>

<p>Landi F, Zuccalà G, Gambassi G, Incalzi RA, Manigrasso L, Pagano F, Carbonin P, Bernabei R. Body mass index and mortality among older people living in the community. <i>J Am Geriatr Soc.</i> 1999 Sep; 47 (9): 1, 072-1, 076. PMID: 10484248.</p>	<p>Does not answer question; examined BMI once and then tested the relationship with mortality, but didn't measure weight change.</p>
<p>Luchsinger JA, Patel B, Tang MX, Schupf N, Mayeux R. Body mass index, dementia, and mortality in the elderly. <i>J Nutr Health Aging.</i> 2008 Feb; 12 (2): 127-131. PMID: 18264640; Central PMCID: PMC2716999.</p>	<p>Does not answer question; examined diagnosis of dementia in relation to BMI and mortality.</p>
<p>McTigue KM, Hess R, Ziouras J. Obesity in older adults: A systematic review of the evidence for diagnosis and treatment. <i>Obesity (Silver Spring).</i> 2006 Sep; 14 (9): 1, 485-1, 497. Review. PMID: 17030958.</p>	<p>Does not answer question; examined diagnosis and treatment of obesity in older adults.</p>
<p>Morley JE. Weight loss in older persons: New therapeutic approaches. <i>Curr Pharm Des.</i> 2007; 13 (35): 3, 637-3, 647. Review. PMID: 18220800.</p>	<p>Does not answer question; examined therapeutic approaches to two causes of weight loss-anorexia and sarcopenia.</p>
<p>Niebauer J, Sixt S, Zhang F, Yu J, Sick P, Thiele H, Lauer B, Schuler G. Contemporary outcome of cardiac catheterizations in 1085 consecutive octogenarians. <i>Int J Cardiol.</i> 2004 Feb; 93 (2-3): 225-230. PMID: 14975551.</p>	<p>Does not answer question; examined cardiac catheterization, not weight loss/maintenance.</p>
<p>Phan HM, Alpert JS, Fain M. Frailty, inflammation, and cardiovascular disease: Evidence of a connection. <i>Am J Geriatr Cardiol.</i> 2008 Mar-Apr; 17 (2): 101-107. Review. PMID: 18326951.</p>	<p>Study is a narrative review.</p>

Article (Q-Z)	Reason for Exclusion
<p>Ritchie CS, Joshipura K, Silliman RA, Miller B, Douglas CW. Oral health problems and significant weight loss among community-dwelling older adults. <i>J Gerontol A Biol Sci Med Sci.</i> 2000 Jul; 55 (7): M366-M371. PMID: 10898252.</p>	<p>Does not answer question; examined how oral health problems contributed to weight loss.</p>
<p>Rivadeneira F, Houwing-Duistermaat JJ, Vaessen N, Vergeer-Drop JM, Hofman A, Pols HA, Van Duijn CM, Uitterlinden AG. Association between an insulin-like growth factor I gene promoter polymorphism and bone mineral density in the elderly: The Rotterdam Study. <i>J Clin Endocrinol</i></p>	<p>Does not answer question; examined the association between insulin-like growth factor 1 gene and bone mineral density.</p>

<p><i>Metab.</i> 2003 Aug; 88 (8): 3, 878-3, 884. PMID: 12915683.</p>	
<p>Rivière S, Gillette-Guyonnet S, Voisin T, Reynish E, Andrieu S, Lauque S, Salva A, Frisoni G, Nourhashemi F, Micas M, Vellas B. A nutritional education program could prevent weight loss and slow cognitive decline in Alzheimer's disease. 2001; 5 (4): 295-299. PMID: 11753499.</p>	<p>Does not answer question; examined nutrition education related to preventing weight loss and slow cognitive decline in Alzheimer's disease.</p>
<p>Robinson AW, Sloan HL. Heart health and older women. <i>J Gerontol Nurs.</i> 2000 May; 26 (5): 38-45. Review. PMID: 11111519.</p>	<p>Study is a narrative review.</p>
<p>Schellenbaum GD, Smith NL, Heckbert SR, Lumley T, Rea TD, Furberg CD, Lyles MF, Psaty BM. Weight loss, muscle strength and angiotensin-converting enzyme inhibitors in older adults with congestive heart failure or hypertension. <i>J Am Geriatr Soc.</i> 2005 Nov; 53 (11): 1, 996-2, 000. PMID: 16274385.</p>	<p>Does not answer question; examined the effect of angiotensin-converting enzyme inhibitor related to weight maintenance, not related to the research question.</p>
<p>Srikanthan P, Seeman TE, Karlamangla AS. Waist-hip-ratio as a predictor of all-cause mortality in high-functioning older adults. <i>Ann Epidemiol.</i> 2009 Oct; 19 (10): 724-731. Epub 2009 Jul 12. PMID: 19596204.</p>	<p>Does not answer question; examined BMI and waist-to-hip ratio measurements, but not related to weight loss/maintenance.</p>
<p>Strandberg TE, Strandberg A, Salomaa VV, Pitkälä K, Miettinen TA. Impact of midlife weight change on mortality and quality of life in old age. Prospective cohort study. <i>Int J Obes Relat Metab Disord.</i> 2003 Aug; 27 (8): 950-954. PMID: 12861236.</p>	<p>Does not answer question; examined the impact of midlife weight change on mortality in old age.</p>
<p>Stroup-Benham CA, Markides KS, Espino DV, Goodwin JS. Changes in blood pressure and risk factors for cardiovascular disease among older Mexican-Americans from 1982-1984 to 1993-1994. <i>J Am Geriatr Soc.</i> 1999 Jul; 47 (7): 804-810. PMID: 10404923.</p>	<p>Does not answer question; examined changes in blood pressure and risk factors for cardiovascular disease.</p>
<p>Topinková E. Aging, disability and frailty. <i>Ann Nutr Metab.</i> 2008; 52 Suppl 1: 6-11. Epub 2008 Mar 7. Review. PMID: 18382070.</p>	<p>Study is a narrative review.</p>
<p>Villareal DT, Banks MR, Patterson BW, Polonsky KS, Klein S. Weight loss therapy improves pancreatic endocrine function in obese older adults. <i>Obesity (Silver Spring).</i> 2008 Jun; 16(6): 1, 349-1, 354. Epub 2008 Apr 3. PMID: 18388888; PMCID: PMC2799929.</p>	<p>Does not answer question; examined; did not include one of the outcomes of interest.</p>

<p>Wang SY, Fukagawa N, Hossain M, Ooi WL. <u>Longitudinal weight changes, length of survival, and energy requirements of long-term care residents with dementia.</u> <i>J Am Geriatr Soc.</i> 1997 Oct; 45 (10): 1, 189-1, 195. PMID: 9329479.</p>	<p>Study subjects diagnosed with dementia.</p>
<p>Waring WS, McKnight JA. <u>Weight loss and fatigue in an elderly patient.</u> <i>Scott Med J.</i> 2005 Feb; 50 (1): 30-31. PMID: 15792387.</p>	<p>Study is a case report.</p>
<p>Weyant RJ, Newman AB, Kritchevsky SB, Bretz WA, Corby PM, Ren D, Weissfeld L, Rubin SM, Harris T. <u>Periodontal disease and weight loss in older adults.</u> <i>J Am Geriatr Soc.</i> 2004 Apr; 52 (4): 547-553. PMID: 15066069.</p>	<p>Does not answer question; examined weight loss related to periodontal disease.</p>
<p>White H, Pieper C, Schmader K. <u>The association of weight change in Alzheimer's disease with severity of disease and mortality: A longitudinal analysis.</u> <i>J Am Geriatr Soc.</i> 1998 Oct; 46 (10): 1, 223-1, 227. PMID: 9777903.</p>	<p>Study subjects diagnosed with dementia.</p>